PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PF0576 PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US99/17997	International filing date *(day/month/year)* 09 AUGUST 1999	Priority date *(day/month/year)* 10 AUGUST 1998
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant INCYTE PHARMACEUTICALS, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of report with regard to novelty, inventive step or industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
08 MARCH 2000	05 NOVEMBER 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer PETER TUNG Telephone No. (703) 308-0196

Form PCT/IPEA/409 (cover sheet) (July 1998)★

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US99/17997

I. Basis of the report

1. With regard to the **elements** of the international application:*

[X] the international application as originally filed

[X] the description:
pages 1-49 , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

[X] the claims:
pages 50-51 , as originally filed
pages NONE , as amended (together with any statement) under Article 19
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

[X] the drawings:
pages 1-3 , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

[X] the sequence listing part of the description:
pages 1-6 , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

[ ] the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

[ ] the language of publication of the international application (under Rule 48.3(b)).

[ ] the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

[X] contained in the international application in printed form.

[X] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readable form.

[ ] The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] The statement that the information recorded in computer readable form is identical to the writen sequence listing has been furnished.

4. [X] The amendments have resulted in the cancellation of:

[X] the description, pages NONE

[X] the claims, Nos. NONE

[X] the drawings, sheets/~~fig~~ NONE

5. [ ] This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

***Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
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III. Non-establishment f opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐ the entire international application.

☒ claims Nos. 17,18

because:

☐ the said international application, or the said claim Nos. _ relate to the following subject matter which does not require international preliminary examination *(specify)*.

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. _ are so unclear that no meaningful opinion could be formed *(specify)*.

☐ the claims, or said claims Nos. _ are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 17,18 .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written f rm has not been furnished or does not comply with the standard.

☐ the c mputer readable form has not been furnished or does not comply with the standard.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
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V. Reasoned stat ment under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims	7,8,12-16,19,20	YES
	Claims	1-6, 9-11,	NO
Inventive Step (IS)	Claims	19,20	YES
	Claims	1-16	NO
Industrial Applicability (IA)	Claims	1-16, 19,20	YES
	Claims	NONE	NO

2. citations and explanations (Rule 70.7)

Claims 1-3 lack novelty under PCT Article 33(2) as being anticipated by Murray et al. Murray et al. teach a polpeptide identical to SEQ ID NO: 2 except for the first three amino acids. Claims 1-3 are therefor anticipated by Murray et al.

Claims 4-6 and 9-11 lack novelty under PCT Article 33(2) as being anticipated by Taniguchi et al. Taniguchi et al. teach a polynucleotide which is at least 70% identical to the coding region of SEQ ID NO: 4. This polynucleotide also comprises a fragment of SEQ ID NO: 4 and polynucleotides complementary to SEQ ID NO: 4, which is that of the instant claims.

Claims 7 and 8 lack an inventive step under PCT Article 33(3) as being obvious over Murray et al. The teachings of Murray et al. have been discussed supra. Murray et al. also teach the polynucleotide which encodes SEQ ID NO: 2 Murray et al. do not teach a method of detecting the polynucleotide encoding SEQ ID NO: 2. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to detect SEQ ID NO: 4 by using a polynucleotide complementary to SEQ ID NO: 4 by hybridization and using methods of amplification prior to hybridization to detect SEQ ID NO: 4 for the benefit of detecting DNA which encodes a protein involved in the developing nervous system as taught by Murray et al. One of ordinary skill in the art is motivated to do this as hybridization and amplification methods are well known in the art and used to study protein expression. Therefore the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time of the invention.

Claims 12-14 lack an inventive step under PCT Article 33(3) as being obvious over Murray et al. The teachings of Murray et al. have been discussed supra. Murray et al. also teach the polynucleotide which encodes a fragment of SEQ ID NO: 2 Murray et al. do not teach an expression vector comprising said polynucleotide sequence, a host comprising said vector or a method of making said protein. It would have been prima facie obvious to one of ordinary skill in the art at the time of the

(Continued on Supplemental Sheet.)

Supplemental Box
(T be used when the space in any f the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

CLASSIFICATION:
The International Patent Classification (IPC) and/or the National classification are as listed below:
IPC(7): C12N 15/12; C07K 14/705, 16/28; A61K 38/17; C12Q 1/68 and US Cl.: 530/350, 387.1; 435/ 6,320.1, 69.1, 325; 536/ 23.1; 514/2

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):
invention to produce the polypeptide taught by Murray et al. for the benefit of producing large amounts of protein. One of ordinary skill in the art is motivated to do this as this would allow characterizing a protein whose function is not known. Expression vectors, transforming host cells and expressing proteins from the vectors comprising a heterologous sequence is well known in the art.
Therefore the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time of the invention.

Claims 15 and 16 lack an inventive step under PCT Article 33(3) as being obvious over Murray et al. The teachings of Murray et al. have been discussed supra. Murray et al. do not teach antibodies against the protein of SEQ ID NO: 2. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to produce antibodies against the polypeptide fragment of SEQ ID NO: 2 as taught by Murray et al. One of ordinary skill in the art is motivated to do this as this would allow characterizing a protein whose function is not known. For the production of antibodies, the fragment of SEQ ID NO: 2 would be used in a pharmaceutical composition. Therefore the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time of the invention.

Claims 19 and 20 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a method of treating or preventing a disorder associated with EXADH.

Claims 1-16 and 19-20 meet the criteria set out in PCT Article 33(4) for industrial applicability.

---------- NEW CITATIONS ----------
NONE